

**REMARKS**

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

Applicant is submitting the present Amendment without prejudice to the subsequent prosecution of claims to some or all of the subject matter which might be disclaimed by virtue of this paper, and explicitly reserves the right to pursue some or all of such subject matter, in Divisional or Continuation Applications.

**I. CLAIM STATUS AND AMENDMENTS**

Contrary to items 4 and 4(a) of the Office Action Summary, kindly note that claim 9 was the only pending and rejected claim in this application when last examined. Claims 1-8 and 10 were canceled in the Amendment filed November 9, 2007.

Claim 9 has been amended. New claims 11-17 have been added, which correspond to original claim 9 and further preferred embodiments. Support for amended claim 9 and new claims 11 and 17 can be found in original claim 9 and in the disclosure, for example, at page 4, lines 18-25, and page 5, lines 10-17.

Support for claim 12 can be found in the disclosure, for example, at page 4, lines 2-3, and the Abstract as filed.

Support for claim 13 can be found in the disclosure, for example, at page 4, lines 2-5, page 5, lines 1-3, and page 7, lines 14-16.

Support for claim 14 can be found in the disclosure, for example, at page 6, lines 16-19.

Support for claim 15 can be found in the disclosure, for example, at page 7, lines 21-22.

Support for claim 16 can be found in the disclosure, for example, at page 10, line 1, page 11, line 4, page 17 (Table 6), page 18, lines 20-21, page 22, lines 4-14, and page 24, 1-7 and Table 12.

No new matter has been added by the above claim amendments.

Claims 9 and 11-17 are pending upon entry of this amendment.

Applicant thanks the Examiner for the careful examination of this case and respectfully requests reexamination and reconsideration of the case, as amended. Below Applicant addresses the rejections in the Office Action and explains why the rejections are not applicable to the pending claims as amended.

## **II. 101 REJECTION**

On page 2 of the Office Action, claim 9 was rejected under 35 U.S.C. § 101, as being an improper process claim for failing to recite method steps. This rejection is respectfully traversed as applied to the amended and new claims.

Claim 9 has been amended to be more clearly a process claim. Thus, the claim is a proper process claim with delineated method steps. Further, Applicant notes that new independent claim 11 and new dependent claims 12-17 are also proper process claims with clear method steps.

Therefore, the rejection is believed to be overcome as applied to amended claim 9 and it should not be applied to new claims 11-17. Withdrawal thereof is respectfully requested.

### **III. INDEFINITENESS REJECTION**

Claim 9 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reasons set forth on pages 3-4 of the Office Action. This rejection is respectfully traversed as applied to the amended and new claims.

The preamble of claim 9 has been amended to recite "A method of using a wood chip" as suggested at page 3 of the Office Action.

Claim 9 has also been amended to replace "drying naturally to 10-40% water content" with "drying the wood chip to a 10-40% moisture content." This amendment obviates the Office's concern over the term "naturally" in relation to drying. It is further noted that the specification provides a clear description of an air drying step by exposing the wood chips to air (new claim 12). See, for instance, the

description at page 4, lines 2-3, and the Abstract as filed. The drying of the wood chips relates to "moisture content" of the wood chips as supported by the disclosure and as understood by the common knowledge in the industry at the time of filing.

Therefore, the rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

### **III. OBVIOUSNESS REJECTION**

Claim 9 was rejected under 35 U.S.C. § 103(a) as obvious over RENWICK et al. (U.S. 3,034,882) in view of REEB (FOR-55: Drying Wood, 1999) for the reasons on pages 4-6 of the Office Action. This rejection is respectfully traversed as applied to amended claim 9 and new claims 11-17.

Applicants will first discuss the general background of the technology. Moisture content of wood plays a vital role in liquid penetration. When moisture content is above the fiber saturation point, wood can still uptake water by absorption or capillary action until the cell cavity is filled up with liquid. However, excess moisture in wood voids may act as a physical barrier for the mass flow of liquid. Fiber saturation point in wood is generally achieved at 30% moisture content level. The application of bulk amount woodchip fertilizer and the production cost can be minimized if more amounts of liquids can be impregnated in the wood chips.

Applicants achieved these goals in the methods of independent claims 9 and 11, wherein the moisture content of wood chip fertilizer is reduced up to 10-40% by air drying, for example, by stalking the woodchip in shed. By applying these methods, natural air will eventually reduce the moisture content. And, of course, the moisture content should be determined in dry wet basis before impregnating liquids into woodchip. As the moisture content of the wood chip is reduced, greater amounts of fertilizers, pesticides and plant growth regulators can be impregnated therein. Besides, pressurized method is applied to increase the amount of liquid in void structure of woodchip in short period of time. Even if the moisture content does not drops down below the fiber saturation point rapidly, more amount of fertilizer, pesticides or plant growth regulators can be impregnated with pressurized method.

The wood chip fertilizer supply nutrients or act like pesticides or enhance plant growth by supplying plant growth hormones. To achieve such objectives, Applicants mix those chemicals in a proportionate amount and apply them to the dried wood chips in such a way as to not alter the individual chemical properties thereof, but instead to act as fertilizers, pesticides or growth regulators when applied to crops.

To this end, amended claim 9 calls for a method of using a wood chip, which method comprises the steps of: (a) manufacturing a wood chip; (b) drying the wood chip to a 10-40%

moisture content; (c) permeating more than one of a fertilizer, a pesticide or a plant growth regulator into said wood chip by a pressurized method or an immersion method; and (d) mixing at different rates of fertilizer, pesticide or plant growth regulator according to the crops demand.

Similarly, new claim 11 calls for a method of using a wood chip, which method comprises: (a) drying one or more wood chips to a 10-40% moisture content; (b) applying more than one selected from the group consisting of a fertilizer, a pesticide, and a plant growth regulator to the dried wood chips, by a pressurized method or an immersion method, under conditions to permeate the fertilizer, pesticide or plant growth regulator into the dried wood chips to produce treated wood chips; and (c) mixing the treated wood chips permeated having different fertilizers, pesticides, or plant growth regulators, to obtain a mixture of treated wood chips.

Applicants respectfully submit that RENWICK et al. or REEB, taken alone or in combination, does not teach, suggest or make obvious each and every element of independent claims 9 (step (b)) and claim 11 (step (a)), namely the step of drying the wood chips to a moisture content of 10-40%. It is also respectfully submitted that the combination of the references would not yield predictable results to arrive at such.

It is well established that to support a *prima facie* case of obviousness, the Office must provide a rationale showing

that all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions to yield predictable results. See, *KSR International Co. v. Teleflex Inc.*, 550 U.S. \_\_\_, \_\_\_, 82 U.S.P.Q.2d 1385, 1395 (2007); and M.P.E.P. (Eighth Ed., Rev. 6 (September 2007) at § 2143.02.

Starting with the primary reference of RENWICK et al., no where does this reference disclose or suggest drying the wood chips to a moisture content of 10-40%. Instead, at column 2, lines 53-72, RENWICK et al. discloses:

When the chips have been manufactured from the "green" lumber or wood waste they will usually be 55 found to contain from 50 to 55% by weight of moisture, although in some species this percentage may run as high as 200%. The moisture is of two types, called "free water" when referring to moisture filling the cell cavities, and "absorbed water" when referring to moisture which is absorbed into the cell walls. In some instances it may be desirable to drive off only the free water, and to leave the cell walls saturated, however, I have found that better results are obtained by driving off both moisture components. These components are driven off by means of agitating and heating the chips in an appropriate mechanical roaster or rotary type oven or drier, with the result that the cells, cavities of longitudinal parenchyma, wood ray parenchyma and tracheids are emptied of their "free" and "absorbed" moisture content, leaving only materials such as dead protoplasm, proteins, starch, tannins, phlobaphenes, fats, cycloses and carbohydrates within the cell walls. [Emphasis added.]

Such a description suggests removing all water from the water chips, as opposed to drying to a 10-40% moisture content as required by claims 9 and 11. The removal of all water clearly does not suggest or predict drying to a 10-40% moisture content. For this reason, it is clear that RENWICK et al. do not disclose or suggest each and every element of independent claims 9 and 11.

In fact, Applicants submit that such a disclosure actually teaches away from the claimed step of drying to a 10-40% moisture content. It is well established that prior art references cannot be combined where a reference teaches away from their combination. See, M.P.E.P. (Eighth Ed., Rev. 6 (September 2007) at § 2145, X, D, 2. It is well also established that, if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. M.P.E.P. (Eighth Ed., Rev. 6 (September 2007) at § 2143.01, V. Accordingly, one of ordinary skill in the art, upon reading RENWICK et al. would be led in a divergent direction, away from that of the claimed method. For this reason, RENEWICK et al. cannot be combined with REEB to arrive at the method of claims 9 and 11. And, even if they were combined, they would not yield predictable results to arrive at the method of claims 9 and 11.

Also, it is noted that RENWICK et al. do not disclose or suggest air drying the wood chips (new claim 12). Instead, RENWICK et al. discloses using a rotary type oven or drier.



For these reasons, independent claims 9 and 11 are novel and patentable over RENWICK et al.

Turning now to the secondary reference, Applicants respectfully submit that REEB fails to remedy the deficiencies of RENWICK et al. The Office relied upon REEB as allegedly disclosing air drying wood to a final moisture content of 20-30% percent. See the bottom of page 5 of the Action.

However, Applicants respectfully submit that the disclosure in REEB in no way suggests air drying wood chips. Instead, REEB discusses and relates to air drying stacked lumber. See for instance the second paragraph on page 4, wherein REEB states "[a]ir drying refers to stacking lumber and exposing it to the outdoors." REEB then goes on to discuss proper stacking methods to achieve air drying. However, wood chips are clearly different from stacked lumber. Applicants submit that methods of treating stacked lumber are not predictive of wood chips.

Thus, the combined references fail to disclose or suggest each and every element of claims 9 and 11, namely, air drying woods to a moisture content of 10-40%. Further, Applicants respectfully submit that those skilled in the art, at the time the invention was made, would not have been motivated to combine the teachings of RENWICK et al. and REEB, as they relate to different products (stacked lumber versus wood chips) and given the teaching away in RENWICK et al. Thus, the combined references cannot render obvious claims 9 and 11.

For these reasons, independent claims 9 and 11 are novel and patentable over the combination of RENWICK et al. and REEB. Dependent claims 12-17 are also novel and patentable for these same reasons in view of their dependency on claims 9 and 11.

It is further noted that RENWICK et al. and REEB also fail to disclose or suggest each and every element of the newly added dependent claims, such as: the step of "air drying" the wood chips of new claim 12; the temperature, pressure and time conditions of new claim 13; the length and size of the pit in a plant cell wall of the wood chip of claims 14-15; and the type of wood of claim 16. For these additional reasons, dependent claims 12-17 are novel and patentable over the combination of RENWICK et al. and REEB.

Therefore, Applicants respectfully submit that the above-noted 103(a) obviousness rejection is untenable and should be withdrawn.

#### IV. CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that the present application is in condition for allowance and early notice to that effect is hereby requested.

If the Examiner has any comments or proposals for expediting prosecution, please contact the undersigned attorney at the telephone number below.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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